

Claim 3. (previously amended) The EL device of claim 1, wherein said CNC layer are selected from the group of semiconductor materials consisting of  $\text{Zn}_x\text{Cd}_{1-x}\text{Se}$  (core) -  $\text{Zn}_y\text{Mg}_{1-y}\text{Se}$  (cladding),  $\text{Zn}_x\text{Cd}_{1-x}\text{Se}$  (core) -  $\text{Zn}_z\text{Be}_{1-z}\text{Se}$  (cladding),  $\text{Zn}_x\text{Cd}_{1-x}\text{Se}$  (core) -  $\text{ZnMgSSe}$  (cladding),  $\text{In}_x\text{Ga}_{1-x}\text{N}$  (core) -  $\text{GaN}$  (cladding),  $\text{GaN}$  (core)- $\text{AlGaIn}$  (cladding), and  $\text{ZnCdS}$  (core)-  $\text{ZnMgS}$  (cladding), where the subscripts x, y, z represent molar fractions.

Claim 4. (canceled).

Claim 5. (previously amended) The EL device of claim 1, wherein said CNC layer is sandwiched between compatible wide energy gap semiconductor layers selected from the group of semiconductors consisting of  $\text{Zn}_a\text{Mg}_{1-a}\text{Se}$ ,  $\text{Zn}_a\text{Mg}_{1-a}\text{S}$ ,  $\text{Zn}_a\text{Mg}_{1-a}\text{S}_b\text{Se}_{1-b}$ ,  $\text{Zn}_a\text{Be}_{1-a}\text{S}_b\text{Se}_{1-b}$ ,  $\text{AlcGa}_{1-c}\text{N}$ , and  $\text{AlInN}$ , where the subscripts a, b, c represent molar fractions.

Claim 6. (original) The EL device of claim 1, wherein said *p-n* junction is reverse-biased electrically to operate said device in avalanche mode.

Claim 7. (original) The EL device of claim 1, wherein said *p-n* junction is forward-biased electrically to operate in injection mode.

Claim 8. (previously amended) The EL device of claim 1, wherein the layer comprising CNC further comprises multiple sub-layers of differing CNCs sandwiched between epitaxially grown thin film layers of *p*- and *n*-type wide energy gap semiconductors.

Claims 9. (canceled).

Claim 10. (previously amended) An EL device as described in claim 2, wherein said CNC layer has more than one sublayer of differing CNCs stacked to emit different colors and white light.

Claim 11. (currently amended) The device EL device as described in claim 1, wherein said [first] *p*-doped Si layer is substituted by a transparent ITO, forming the bottom electrodes.

Claim 12. (previously amended) The EL device as described in claim 2, wherein more than one said CNC layer are deposited to produce red, green and blue pixel elements for a display panel.

Claim 13. (currently amended) The EL device of claim 1, wherein the [second] *p*-doped wide energy gap semiconductor layer underneath the said CNC layer is replaced by a dielectric layer.

Claim 14. (previously amended) . The EL device of claim 1, wherein the wide energy gap semiconductor layer having *n*-type conductivity over the said CNC layer is replaced by a dielectric layer.

Claim 15. (previously amended) The electroluminescent device of claim 13, wherein the dielectric layers are selected from the group consisting of  $\text{SiON}$ ,  $\text{Ta}_2\text{O}_5$ ,  $\text{Ba}_x\text{Sr}_{1-x}\text{TiO}_3$ ,  $\text{PLZT}$ ,  $\text{Zn}_x\text{Mg}_{1-x}\text{S}$ ,  $\text{Zn}_x\text{Be}_{1-x}\text{S}$ , and their combination.

Claim 16. (original) The electroluminescent device of claim 14, wherein dielectric layers are selected from the group consisting of SiON, Ta<sub>2</sub>O<sub>5</sub>, Ba<sub>x</sub>Sr<sub>1-x</sub>TiO<sub>3</sub>, PLZT, Zn<sub>x</sub>Mg<sub>1-x</sub>S, Zn<sub>x</sub>Be<sub>1-x</sub>S, and their combinations.

Claim 17. (canceled).

Claim 18. (previously amended). The device of claim 1, wherein the wide energy gap semiconductor layer having n-type conductivity over said CNC layer is replaced by a hole-blocking layer.

Claim 19. (canceled).

Claim 20. (original) The electroluminescent device of claim 18, wherein the hole-blocking layer is selected from the group consisting of Ta<sub>2</sub>O<sub>5</sub>, Zn<sub>x</sub>Mg<sub>1-x</sub>S, Zn<sub>x</sub>Be<sub>1-x</sub>S, and ZnMgBeSe.

Claim 21. (canceled).

Claim 22. (currently amended) The device of claim 1, wherein the second p-doped [wide energy gap] semiconductor layer underneath the said CNC layer is replaced by a hole-transporting organic semiconductor layer.

Claims 23-24. (canceled).

Claim 25 (original) The electroluminescent device of claim 22, wherein the hole-transporting layer is selected from the group consisting of PVK and CBP.

Claim 26 (original) The electroluminescent device of claim 22, wherein the hole transporting layer is doped with an oxidative agent selected from the group of compounds such as Fe<sup>III</sup> citrate and Fe<sup>III</sup> oxalate.

Claim 27. (original) The EL device as described in claim 26, wherein the oxidative agent is constructed with a thin shield around the oxidizing agent utilizing appropriate counter ions, chelating agents, surfactants and dendrimers.

Claim 28. (canceled).

Claim 29. (original) The electroluminescent device of claim 22, wherein the CNC layer is merged with the hole-transporting layer.

Claims 30-37. (canceled).

Claim 38. (currently amended) The electroluminescent device of claim 22, wherein both hole-transporting layer and CNC layer is substituted by a viscous composite comprising of CNCs, hole-transporting organic semiconductors, oxidative agents, soluble salts and [lower than atmospheric vapor pressure] viscosity-modifying agents.

Claim 39 (previously amended) The electroluminescent device of claim 38, wherein viscous composite is contained within appropriate openings realized between spacers, which are made of hole transporting viscous composite.

Claim 40. (previously amended) The electroluminescent device of claim 39, wherein the holes in said spacers are filled with said viscous composite with distinct emission characteristics.

Claim 41.(previously amended) The EL device as described in claim 40, wherein the viscous composites are introduced by method selected from the group consisting of screen-printing and ink-jet printing.

Claim 42. (previously amended) An electroluminescent (EL) device of claim 1, where in  $p$ - $n$  junction is replaced by an  $n$ - $p$ - $n$  junction electroluminescent device comprising successively layers of:

- a  $n$ -doped silicon layer on insulator substrate, comprising thin doped Si  $n/n^+$  regions separated by insulating regions, such as  $\text{SiO}_2$ , wherein said  $n^+$  regions are contacted to form bottom electrodes;
- a thin-layer of Si allowing for further epitaxial growth;
- a  $n^+$ -type Si layer, having addressing contact electrodes;
- a thin (about 10 nm)  $\text{SiO}_2$  layer is deposited, which is deposited and patterned with a pitch of about 0.1 microns;
- a  $p$ -Si layer forming nanotips ;
- an  $n$ -type wide energy gap layer selected from a group of semiconductors consisting of  $\text{Zn}_a\text{Mg}_{1-a}\text{Se}$ ,  $\text{Zn}_a\text{Mg}_{1-a}\text{S}$ ,  $\text{Zn}_a\text{Mg}_{1-a}\text{SbSe}_{1-b}$ ,  $\text{Zn}_a\text{Be}_{1-a}\text{SbSe}_{1-b}$ ,  $\text{Al}_c\text{Ga}_{1-c}\text{N}$ ,  $\text{ZnMgBeSe}$ ,  $\text{AlInN}$  stacked on the layer comprising of nanotips;
- a layer comprising of cladded quantum dots;
- a wide gap semiconductors layer selected from semiconductors consisting of:  $\text{Zn}_a\text{Mg}_{1-a}\text{Se}$ ,  $\text{Zn}_a\text{Mg}_{1-a}\text{S}$ ,  $\text{Zn}_a\text{Mg}_{1-a}\text{SbSe}_{1-b}$ ,  $\text{Zn}_a\text{Be}_{1-a}\text{SbSe}_{1-b}$ ,  $\text{Al}_c\text{Ga}_{1-c}\text{N}$ ,  $\text{ZnMgBeSe}$ ,  $\text{AlInN}$ ; and
- a layer forming contact electrodes, wherein aid set of electrodes are appropriately biased and addressed to create a two-dimensional display.

Claim 43. (previously amended) A  $p$ - $n$ - $p$  configuration electroluminescent (EL) device, comprising successively layers, of:

- a  $p$ -type silicon layer on insulator substrate, comprising thin doped Si  $p/p^+$  regions separated by insulating regions, such as  $\text{SiO}_2$ , wherein said  $p^+$  regions are contacted to form bottom electrodes;